

REMARKS

I. STATUS OF THE CLAIMS

The claims are amended herein.

Withdrawn claims 11, 12, 14 and 15 are dependent from amended independent claims. It is assumed that these withdrawn claims would be allowed if the independent claims were allowed. Therefore, although claims 11, 12, 14 and 15 were withdrawn, these claims are amended herein to be consistent with the amendments to the independent claims. For this reason, it is respectfully requested that the amendments to the withdrawn claims be entered.

It is respectfully submitted that claim 16 is still pending, and should be listed in the pending claims in Item 4 on Form PTO-326 of the Office Action.

New claims 32-43 are added. Support for the new claims is found, for example, in FIGS. 5 and 6 and the disclosure on page 14, last paragraph, through page 15, first paragraph.

In view of the above, it is respectfully submitted that claims 1, 2 and 7-43 are currently pending.

II. REJECTION OF CLAIMS 1-2, 7-8, 10, 13, 16-20 AND 23-31 UNDER 35 USC 102(E) AS BEING ANTICIPATED BY HANSEN

The present invention as recited, for example, in claim 1, relates to an **optical regenerator** which shapes a waveform of signal light to thereby output a shaped signal light. As recited, for example, in claim 1, a power level of signal light input to the optical regenerator is controlled to improve a quality measurement of the signal light output by the optical regenerator. The quality measurement is one of a Q factor, a bit error rate, a spectrum shape and an eye opening.

See, for example, FIGS. 9-13 of the present application.

Please note that the claims are amended to recite an "optical regenerator". Further, please note that new claims 32-43 are added to recite the optical regenerator as being one of an interference type optical regenerator and a nonlinear optical loop mirror (NOLM) optical regenerator. Support for the new claims is found, for example, in FIGS. 5 and 6 and the disclosure on page 14, last paragraph, through page 15, first paragraph.

Hansen relates to Raman amplification, which is amplification due to pump light transmitted through a distributed transmission line. See, for example, column 1, lines 36, through column 2, line 4; column 3, line 20, through column 4, line 22, of Hansen. More specifically, in Hansen, the power level of signal light is controlled before the signal light travels

through a remotely pumped distributed transmission line, wherein the pumping causes Raman amplification to occur in the transmission line. As a result, Hansen reduces four wave mixing (FWM) and other nonlinear effects. See, for example, FIG. 2, and the disclosure in column 5, line 37, through column 6, line 49, of Hansen. See also the disclosure in claim 1 of Hansen.

Hansen does not specifically disclose the use of an optical regenerator.

Moreover, the present specification discloses various problems of optical regenerators, and describes how such problems can be overcome by, for example, controlling a power level of signal light input to an optical regenerator in the manner as recited, for example, in claim 1 of the present application. It is respectfully submitted that no portion of Hansen discloses or suggests such problems of optical regenerators, or how to overcome such problems.

In view of the above, it is respectfully submitted that the rejection is overcome.

III. REJECTION OF CLAIMS 9 AND 21-22 UNDER 35 USC 103 AS BEING UNPATENTABLE OVER RANSFORD IN VIEW OF FEE.

The present invention as recited, for example, in claim 21, relates to an optical repeater comprising (a) an amplifier that amplifies a first signal to produce a second signal; (b) an attenuator that attenuates the second signal to produce a third signal; (c) an optical regenerator that shapes a waveform of the third signal to produce a fourth signal; (d) a quality monitor that measures a quality of the fourth signal; and (e) a controller that controls the attenuator to change a power level of the second signal in accordance with the measured quality and thereby improve the measured quality of the fourth signal. The first, second, third and fourth signals are optical signals. See, for example, FIG. 13 of the present application.

On page 4 of the Office Action, the Examiner concedes that Ransford does not specifically disclose an optical regenerator for shaping the waveform of the third signal to produce a fourth signal.

However, the Examiner cites Fee as showing an optical regenerator, and asserts that it would be obvious to combine the control of Ransford with the optical regenerator of Fee to provide the claimed invention.

The control of Ransford relates to a measured Q factor of optical signals transmitted through an optical transmission line. Ransford does NOT relate to making measurements at the output of an optical regenerator, and making an adjustment to signal light input to the optical regenerator.

Moreover, the present specification discloses various problems of optical regenerators,

and describes how such problems can be overcome by, for example, controlling a power level of signal light input to an optical regenerator in a manner as recited, for example, in claim 21 of the present application.

It is respectfully submitted that no portion of Hansen or Fee discloses or suggests such problems of optical regenerators, or how to overcome such problems. More specifically, it is respectfully submitted that no portion of either Hansen or Fee, taken individually or in combination, discloses or suggests that problems of an optical regenerator can be overcome by controlling a power level of input signal light to the optical regenerator in the manner as recited, for example, in claim 21 of the present application. Therefore, it is respectfully submitted that there is no suggestion in either Hansen or Fee to combine the control of Hansen with the optical regenerator of Fee.

In view of the above, it is respectfully submitted that the rejection is overcome.

IV. REJECTION OF CLAIMS UNDER 35 USC 112

The claims are amended to overcome the rejection.

In view of the above, it is respectfully submitted that the rejection is overcome.

V. CONCLUSION

In view of the above, it is respectfully submitted that the application is in condition for allowance, and a Notice of Allowance is earnestly solicited.

If any further fees are required in connection with the filing of this response, please charge such fees to our Deposit Account No. 19-3935.

Respectfully submitted,

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